

What is claimed is:

1. An electro-luminescence (EL) display, comprising:

a plurality of drive voltage supply lines;

a plurality of compensation voltage supply lines;

EL cells at each crossing of a plurality of data lines and a plurality of gate lines in a matrix, wherein the EL cells emit light in response to currents applied from the drive voltage supply lines;

driving thin film transistors (TFT) connected between the EL cells and compensation voltage supply lines that control the current applied to the EL cells; and

a bias switch, connected between the N-1th compensation voltage supply line and a control terminal of the driving TFT connected to the Nth compensation voltage supply line that applies a bias voltage to the driving TFT when a scan pulse is supplied to the N-1th gate line.

2. The EL display of claim 1, further comprising:

a switching thin film transistor (TFT), connected to the gate line, the data line and the control terminal of the driving TFT; and

a storage capacitor connected between the compensation voltage supply line and the control terminal of the driving TFT.

3. The EL display of claim 2, wherein the bias switch includes:

a control terminal connected to the N-1th gate line;

a first input terminal connected to the N-1th compensation voltage supply line;

and

a second input terminal connected to the control terminal of the driving TFT that is connected to the Nth compensation voltage supply line.

4. The EL display of claim 2, further comprising:

a compensation voltage generator that generates a compensation voltage with a high state; and

5. a shift register that sequentially shifts the compensation voltage with a high state to supply the compensation voltage to the plurality of compensation voltage supply lines. The EL display of claim 4, wherein when the scan pulse is supplied to the N-1th gate line, the compensation voltage with a high state from the shift register is supplied to the Nth compensation voltage supply line and the compensation voltage with a low state from the shift register is supplied to the N-1th compensation voltage supply line.

6. The EL display of claim 5, wherein when the scan pulse is supplied to the N-1th gate line, the control terminal of the driving TFT is supplied with data via the switching TFT and the second input terminal is supplied with a compensation voltage with a low state from the N-1th compensation voltage supply line.

7. The EL display of claim 5, wherein when the scan pulse is supplied to the N-1th gate line, the bias switch supplies a compensation voltage with low state from the N-1th compensation voltage supply line to the control terminal of the driving TFT connected to the Nth compensation voltage supply line and a compensation voltage of high state is supplied from the Nth compensation voltage supply line to the second input terminal of the driving TFT.

8. The EL display of claim 3, wherein the EL display further includes:
a compensation voltage generator that generates a compensation voltage;
a ground voltage common line commonly connected to the plurality of compensation voltage supply lines and the compensation voltage generator that

supplies the ground voltage common line with the compensation voltage with a low state; and

a plurality of built-in switches connected between the plurality of compensation voltage supply lines and the ground voltage common line.

9. The EL display of claim 8, wherein the N-1th built-in switch turns on when a scan pulse is supplied to the N-1th gate line and the Nth built-in switch turns off when the scan pulse is supplied to the N-1th gate line.

10. The EL display of claim 9, wherein each of the a plurality of built-in switches is a thin film transistor of different type from the driving TFT, the switching TFT, and a TFT in the bias switch.

11. The EL display of claim 9, wherein an inverter that inverts the scan pulse is connected between the control terminal of each of the built-in switches and the N-1th gate line.

12. The EL display of claim 9, wherein when the scan pulse is supplied to the N-1th gate line, the switching TFT supplies the control terminal of the driving TFT with data, the control terminal being connected to the N-1th compensation voltage supply line, and the second input terminal is supplied with the compensation voltage with a low state supplied to the N-1th compensation voltage supply line via the built-in switch.

13. The EL display of claim 9, wherein when the scan pulse is supplied to the N-1th gate line, the bias switch supplies the control terminal of the driving TFT with the compensation voltage with a low state from N-1th compensation voltage supply line, the control terminal being connected to the Nth compensation voltage supply line, and the second input terminal is supplied with a floating voltage generated

from the Nth compensation voltage supply line depending upon the on state of the built-in switch.

14. The EL display of claim 3, wherein the EL display further includes:

a compensation voltage generator that generates a compensation voltage with a low state;

a ground voltage common line commonly connected to a plurality of compensation voltage supply lines and the compensation voltage generator that supplies the ground voltage common line with the compensation voltage with a low state; and

N of built-in switches connected between each of the plurality of compensation voltage supply lines and the second input terminal of the driving TFT.

15. The EL display of claim 14, wherein the N-1th built-in switch turns on when a scan pulse is supplied to the N-1th gate line and the Nth built-in switch turns off when the scan pulse is supplied to the N-1th gate line.

16. The EL display of claim 15, wherein the plurality of built-in switches is a thin film transistor of different type from the driving TFT, the switching TFT and a TFT in the bias switch.

17. The EL display of claim 15, wherein an inverter that inverts the scan pulse is connected between the control terminal of each of the built-in switches and the N-1th gate line.

18. The EL display of claim 15, wherein when the scan pulse is supplied to the N-1th gate line, the switching TFT supplies the control terminal of the driving TFT with data, the control terminal being connected to the N-1th compensation voltage supply line, and the second input terminal is supplied with the compensation voltage

with a low state supplied to the N-1th compensation voltage supply line via the built-in switch.

19. The EL display of claim 9, wherein when the scan pulse is supplied to the N-1th gate line, the bias switch supplies the control terminal of the driving TFT with the compensation voltage with a low state from N-1th compensation voltage supply line, the control terminal being connected to the Nth compensation voltage supply line, and the second input terminal is supplied with a floating voltage generated from the Nth compensation voltage supply line depending upon the on state of the built-in switch.

20. A method of driving an electro-luminescence (EL) display having an EL cell formed at every crossing of a plurality of data lines and gate lines in a matrix that emit light in response to current applied from driving voltage supply lines, and a driving thin film transistor connected between the EL cell and a compensation voltage supply line that controls the amount of the current applied to the EL cell, comprising:

supplying a scan pulse to the N-1th gate line to drive the driving TFT and thereby the light-emitting the EL cell; and

allowing a bias voltage to flow through the driving TFT using a bias switch connected between a control terminal of the driving TFT connected to the Nth compensation voltage supply line and the N-1th compensation voltage supply line depending upon the scan pulse supplied to the N-1th gate line.

21. The method of claim 20, wherein the method further includes:

generating a compensation voltage with a high state; and

sequentially shifting the compensation voltage with a high state to supply the compensation voltage to the plurality of compensation voltage supply line.

22. The method of claim 21, wherein when the scan pulse is supplied to the N-1th gate line, the switching TFT supplies the control terminal of the driving TFT with data, the control terminal connected to the N-1th compensation voltage supply line, and the second input terminal is supplied with a compensation voltage with a low state from the N-1th compensation voltage supply line.

23. The method of claim 21, wherein when the scan pulse is supplied to the N-1th gate line, the bias switch supplies a compensation voltage with low state from the N-1th compensation voltage supply line to the control terminal of the driving TFT connected to the Nth compensation voltage supply line and a compensation voltage with a high state is supplied from the Nth compensation voltage supply line to the second input terminal.

24. The method of claim 20, wherein the method further includes:
generating a compensation voltage;
supplying the compensation voltage to a ground voltage common line commonly connected to the plurality of compensation voltage supply lines; and
selectively floating each of the plurality of compensation voltage supply lines using a plurality of built-in switches connected between the plurality of compensation voltage supply lines and the ground voltage common lines.

25. The method of claim 24, wherein each of the built-in switches maintains an on state when the scan pulse is supplied to the gate line and maintains an off state when the scan pulse is supplied to the N-1th gate line.

26. The method of claim 24, wherein when the scan pulse is supplied to the N-1th gate line, the control terminal of the driving TFT is supplied with data, the control terminal being connected to the N-1th compensation voltage supply line, and

built-in switch supplies the second input terminal with a compensation voltage with a low state from the N-1th compensation voltage supply line.

27. The method of claim 24, wherein when the scan pulse is supplied to the N-1th gate line, the bias switch supplies the control terminal of the driving TFT with a compensation voltage with a low state from N-1th compensation voltage supply line, the control terminal being connected to the Nth compensation voltage supply line, and the built-in switch in an off state supplies the second input terminal with a floating voltage generated from the Nth compensation voltage supply line.

28. The method of claim 20, wherein the method further includes:
generating a compensation voltage;
supplying the compensation voltage to a ground voltage common line commonly connected to a plurality of compensation voltage supply lines; and
selectively floating the second input terminal of the driving TFT depending upon the scan pulse using plurality of built-in switches connected between each of the N-number of compensation voltage supply lines and the second terminal of the driving TFT.

29. The method of claim 28, wherein each of the built-in switches maintains an state when the scan pulse is supplied to the gate line and maintains an off state when the scan pulse is supplied to the N-1th gate line.

30. The method of claim 28, wherein when the scan pulse is supplied to the N-1th gate line, the control terminal of the driving TFT is supplied with data, the control terminal being connected to the N-1th compensation voltage supply line, and the built-in switch supplies the second input terminal with a compensation voltage with a low state from the N-1th compensation voltage supply line.

31. The method of claim 28, wherein when the scan pulse is supplied to the N-1th gate line, the bias switch supplies the control terminal of the driving TFT with a compensation voltage with a low state from N-1th compensation voltage supply line, the control terminal connected to the Nth compensation voltage supply line, and the built-in switch in an off state supplies the second input terminal with a floating voltage generated from the Nth compensation voltage supply line.